

CITY OF PETALUMA
CAPITAL AND ANNUAL MAINTENANCE COSTS FOR NATURAL GRASS AND SYNTHETIC TURF PLAY FIELDS
PREPARED BY VERDE DESIGN
MAY 2023

Natural Grass versus Synthetic Turf - 20 Year Life Cost

Construction				Units	Native Soil Natural Grass	Synthetic Turf
Area to be Constructed (Based on a full size 86,000 SF field area)				Sq Ft	86,000	86,000
Hard cost for Construction				\$/Sq Ft	\$9.50	\$20.00
Estimated Cost Hard Cost of Construction:					\$817,000	\$1,720,000
Annual Maintenance				Freq. Units Unit Cost	Nat Grass	Synthetic
Mowing (freq, ac/hr, wage & equipt/hr)				96 0.75 \$100.00	\$25,271	\$0
Irrigation Repair				2 \$/Sq Ft \$0.02	\$2,958	\$0
Turf Repair (Natural Grass)				4 \$/Sq Ft \$0.04	\$13,760	
Turf Repair (Synthetic Turf)				4 \$/Sq Ft \$0.002		\$2,000
Overseed - applications				2 \$/Sq Ft \$0.03	\$5,160	\$0
Aeration				12 \$/Sq Ft \$0.02	\$20,640	\$0
Top Dressing				2 \$/Sq Ft \$0.04	\$6,880	\$0
Fertilization				1 \$/Sq Ft \$0.05	\$4,300	\$0
Watering Use				Units/ac 1,200 \$4.79	\$11,348	\$750
				Units/ac (1 unit = 100 Cu Ft = 748 gallons) 1,250		
				1,850		
Grooming (freq,ac/hr,wage,equipt/hr)				4 0.50 \$100.00		\$1,579
Debris/Trash Pick Up					\$2,580	\$5,590
Estimated Annual Maintenance Cost					\$92,898	\$9,919
Life Cost Comparison				Unit Cost	Nat Grass	Synthetic
Maintenance				Estimated Annual Maintenance Cost	\$92,898	\$9,919
Annual Increase				2.00%		
Maintenance for year 1 through year 5					\$483,442	\$51,621
Maintenance for year 6 through year 10					\$533,759	\$56,994
Maintenance for year 11 through year 15					\$589,313	\$62,926
Maintenance for year 16 through year 20					\$650,650	\$69,475
20 years cost of maintenance					\$2,257,165	\$241,016
Field Renovation				(current year cost) Increase \$/Sq Ft 2.00%	\$1.85	\$9.00
				Year 5 Cost \$2.00	\$172,215	
Replace Synthetic Turf				Year 10 Cost \$2.21	\$190,139	\$925,002
				Year 15 Cost \$2.44	\$209,929	
Replace Synthetic Turf				Year 20 Cost \$2.70	\$231,779	\$1,105,463
Renovation and Replacement Cost					\$804,062	\$2,030,464
Total 20 Year Life Cost					\$3,878,227	\$3,991,480
Cost per hour of available play				Units	Nat Grass	Synthetic
Days of annual use					365	365
Maintenance shut down					45	5
Rain days					30	
Wet days after rain					15	
Total days available for use					275	360
Maximum daily use for PE & Outside UserActivities					8.0	12.0
Annual available hours for sustained growth					2,200	4,320
Cost per day of play					\$2,115	\$1,109
Cost per hour of play					\$88	\$46